

We claim:

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1. A mixture Ia, comprising a mix IIa composed of

a) from 1 to 95% by weight of a solid III, preferably a basic solid III, with a primary particle size of from 5 nm to 20 μ m and

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b) from 5 to 99% by weight of a polymeric composition IV, obtainable by polymerizing

b1) from 5 to 100% by weight, based on the composition IV, of a condensation product V of

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α) at least one compound VI which is capable of reacting with a carboxylic acid or with a sulfonic acid or with a derivative or a mixture of two or more of these, and

β) at least 1 mol per mole of the compound VI of a carboxylic acid or sulfonic acid VII which has at least one functional group capable of free-radical polymerization, or of a derivative thereof or of a mixture of two or more thereof

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and

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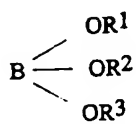
b2) from 0 to 95% by weight, based on the composition IV, of another compound VIII with an average molecular weight

(number average) of at least 5000 having polyether segments in its main or side chain

and

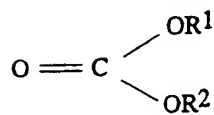
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at least one ester of the formula (E1) to (E5)

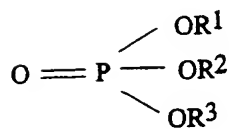


(E1)

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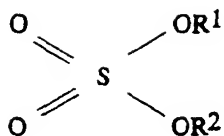


(E2)

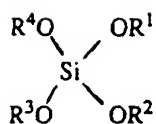


(E3)

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(E4)



(E5)

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where each of R^1 , R^2 , R^3 and R^4 is identical with or different from the others and, independently of the others, is linear or branched-chain C_1 - C_4 -alkyl, $(-\text{CH}_2-\text{CH}_2-\text{O})_n-\text{CH}_3$, where n is from 1 to 3, C_3 - C_6 -cycloalkyl or an aromatic hydrocarbon group, which may in turn be substituted, with the
10 proviso that at least one of the groups R^1 , R^2 , R^3 or R^4 is $(-\text{CH}_2-\text{CH}_2-\text{O})_n-\text{CH}_3$, where n is from 1 to 3.

2. A mixture Ib, comprising a mix Iib composed of

- 15 a) from 1 to 95% by weight of a solid III, preferably a basic solid, with a primary particle size of from 5 nm to 20 μm and
- b) from 5 to 99% by weight of a polymer IX, obtainable by polymerizing

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- b1) from 5 to 75% by weight, based on the polymer IX, of a compound X capable of free-radical polymerization and differing from the carboxylic acid or the sulfonic acid VII or from a derivative thereof, or of a mixture of two or more thereof

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and

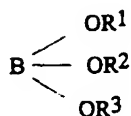
- b2) from 25 to 95% by weight, based on the polymer IX, of another compound VIII with an average molecular weight (number average) of at least 5000, having polyether segments in its main or side chain,

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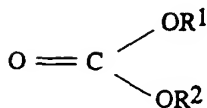
and

at least one ester of the formula (E1) to (E5)

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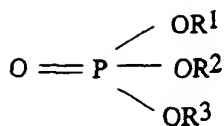


(E1)

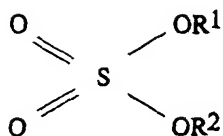


(E2)

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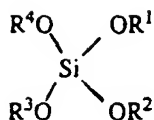


(E3)



(E4)

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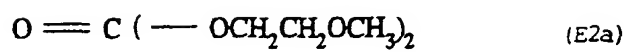
(E5)

10 where each of R^1 , R^2 , R^3 and R^4 is identical with or different from the others and, independently of the others, is linear or branched-chain C_1 - C_4 -alkyl, $(-\text{CH}_2-\text{CH}_2-\text{O})_n-\text{CH}_3$, where n is from 1 to 3, C_3 - C_6 -cycloalkyl or an aromatic hydrocarbon group, which may in turn be substituted, with the proviso that at least one of the groups R^1 , R^2 , R^3 or R^4 is $(-\text{CH}_2-\text{CH}_2-\text{O})_n-\text{CH}_3$, where n is from 1 to 3.

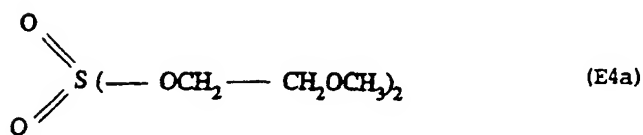
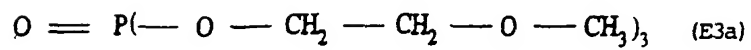
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3. A mixture as claimed in claim 1 or 2, where in the at least one ester of the formula (E1) to (E5) R^1 , R^2 and, if present, R^3 and/or R^4 are identical and are $-\text{CH}_2-\text{CH}_2-\text{O}-\text{CH}_3$ or $(-\text{CH}_2-\text{CH}_2-\text{O})_2-\text{CH}_3$.

4. A mixture as claimed in any of claims 1 to 3, where the at least one ester is selected from the class consisting of compounds (E1a) to (E5a):

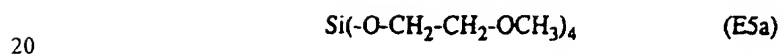


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and



5. A mixture as claimed in any of claims 1, 3 or 4, where the mix IIa is composed of

5 a) from 1 to 95% by weight of a solid III, preferably a basic solid III, with a primary particle size of from 5 nm to 20 μ m and

b) from 5 to 99% by weight of a polymeric composition IV, obtainable by polymerizing

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b1) from 5 to 100% by weight, based on the composition IV, of a condensation product V of

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α) a polyhydric alcohol VI containing carbon and oxygen in its main chain

and

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β) at least 1 mol per mole of the polyhydric alcohol VI of an α,β -unsaturated carboxylic acid VII

and

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b2) from 0 to 95% by weight, based on the composition IV, of another compound VIII with an average molecular weight (number average) of at least 5000, having polyether segments in its main or side chain.

6. A mixture as claimed in any of claims 1 to 5, further containing at least one conducting salt selected from the class consisting of LiPF_6 , LiBF_4 , LiClO_4 , LiAsF_6 , LiCF_3SO_3 , $\text{LiC}(\text{CF}_3\text{SO}_2)_3$, $\text{LiN}(\text{CF}_3\text{SO}_2)_2$, $\text{LiN}(\text{SO}_2\text{F})_2$,
5 $\text{LiN}(\text{CF}_3\text{CF}_2\text{SO}_2)_2$, LiAlCl_4 , LiSiF_6 and LiSbF_6 .
7. A mixture as claimed in claim 6, containing at least one compound (E1a) to (E5a) as defined in claim 3 and LiBF_4 .
- 10 8. A composite encompassing at least one first layer which comprises an electron-conducting, electrochemically active compound, and at least one second layer which comprises a mixture as claimed in any one of claims 1 to 7 and is free from electron-conducting, electrochemically active compounds.
- 15 9. Use of a mixture according to any of claims 1 to 7 or a composite of claim 8 for the preparation of a solid electrolyte, a separator, an electrode, in a sensor, an electrochromic window, a display, a capacitor or an ion-conductive film.
- 20 10. A solid electrolyte, a separator, an electrode, a sensor, an electrochromic window, a display, a capacitor or an ion-conducting film, comprising in each case a mixture as claimed in any one of claims 1 to 7, or a composite according to claim 8.
- 25 11. An electrochemical cell encompassing a solid electrolyte or encompassing a separator or an electrode as claimed in claim 10, or encompassing a combination of two or more of these.

12. Use of the electrochemical cell as claimed in claim 11 as an Automobile battery, appliance battery or flat-type battery.